

DRAFT - Minutes of the third meeting of the technical subcommittee reviewing the 2012 IECC for adoption by New York State, held the Albany office of NYSERDA, on July 23, 2012.

Appearances:

- John Swartz, member (in NYC Boardroom)
- Marshall Kammener, member (in NYC Boardroom)
- John Ferraro, member
- Todd Stewart, member
- Scott Copp, member
- Mike DeWein, member
- Mike Burke, member
- Daniel Farrell, member
- Sal Elder, member of the public
- Don Bickowicz, member of the public
- Marilyn Kaplan, - NYSERDA
- Mike Burnetter, Department of State
- Joseph Hill, Department of State, Committee Chairman

Joseph Hill opened the meeting at approximately 10:10 am, and noted that revised minutes from the 5/17 meeting would be redistributed to the group after lunch for final consideration; minutes from the 6/29 meeting are undergoing edits and have not been distributed to the committee yet.

Joseph Hill directed the discussion to section **R 402.2.3 Building Cavities (Mandatory)** the proposed removal of panned returns

Mike DeWein (member) stated that the building science and research community has determined that panning return ducts is not considered good building practice, offering the following to support this assertion:

- Difficult to do good air-sealing, which can lead to not only but pressurization issues
- Moisture and condensation issues in return bays; metal ducting allows moisture/condensation to sit until air handler moves air through and evaporates this moisture
- The State of Minnesota voluntarily removed use of panned returns several years ago

Marshall Kammener (member) stated that panning can create issues in vertical chases.

Mike Burke (member) asked for clarification in terms of discussion which took place during the June 29 meeting, regarding DOS Counsel opinion on requirements for relative stringency and payback period.

Joseph Hill stated that DOS Counsel has ruled that 2012 IECC document may be modified as the Subcommittee agrees to; final approval is exercised by the Fire Prevention and Building Code Council. The outcome of the process must be that NY state code must be at least as stringent as the 2009 IECC. Payback period is still 10 years, in aggregate; historically the Subcommittee has looked at this on a measure by measure basis, due to the cost.

Todd Stewart (member)– Stated that issues with panned returns arise from running panned returns through unconditioned space; if this is avoided, most of the issues cited are not a concern. Scott Kopp

(member) mentioned that sometimes air handlers are run when there's no Central Air Conditioner; which can introduce moist outside air into the system. Mike Burke stated that CSG staff has talked with Terry Brennan (building science expert) regarding panned ducts. Energy losses may or may not be significant from panned ducts, but generally it is not considered best building practice. Mike Burke suggested that as duct pressure testing must be done per proposed 2012 IECC would serve to discourage and ultimately eliminate the practice.

At this point Joseph Hill introduced guest Sal Elder, Technical Director with EYP Architects and Engineers Mr. Elder stated he is a practicing Architect in NY State, working predominantly in the commercial building sector. Mr. Elder cited his concerns with Indoor Air Quality (IAQ) issues associated with panned returns; he has such a system in his current home. He stated that leaky homes sometime alleviate IAQ issues, by exchanging outside air naturally, however as home are tightened up these become more pronounced. Wooden ducts (OSB and plywood) are food sources for mold, can harbor mold and can't be cleaned as metal ducts. He stated that he and his firm is seeing mold growth in these return plenums, and that this presents a risk for builders/building owners.

Mike Burke asked if studies are available showing that panned returns in conditioned space lead to energy penalty. Asked if it in the purview of the Subcommittee to consider building science and occupant health issues. ACCA Appendix 11 states that there is no significant energy savings benefit to eliminating panned returns. Joseph Hill stated that the 2012 IECC has been vetted by the NAHB as part of the ICC code update and adoption process; vapor barriers are a moisture management issue and are in the energy code, so considering moisture issues associated with panning ducts is within the purview of the energy code. Mike DeWein stated that the ACCA Preferred Construction Methods document indicates that there is an energy penalty associated with panned returns.

At this point, Joseph Hill introduced Don Bickowicz with Appollo Heating in Schenectady. Mr. Bickowicz stated that Apollo Heating has been in business since 1972. He stated that eliminating panned returns would add cost to a job. It is a difficult task from a duct design standpoint, with multiple returns coming into a return bay in the floor. They do not put any panned returns in unconditioned space as standard practice.

Joseph Hill stated that he had reached out to other states regarding the panned return issue, with some notable themes among his colleagues there:

- Residential duct design is typically not done at the time the home is on the drafting table.
- Small amount of leakage can cause a well designed system to perform poorly.

There was general discussion about the challenges of duct design and layout, given customer preferences for open floor plans. Scott Kopp clarified that ACCA Manual D does not calculate return airflow based on friction from wood return bays; it is assumed that returns are hard-ducted. The group generally agreed that mid- to lower-price point homes typically do not have an architect or engineer involved in the duct design. Joseph Hill stated that guidelines for code development should be to set the lowest level of acceptable quality because some builders will try to circumvent code requirements. Todd Stewart stated that this is an enforcement issue. Mike DeWein mentioned that a group (Leading Builders of America?) has split off from the NAHB, with intent of promoting better construction practices based on better building science.

Todd Stewart stated that panned returns provide needed return air volume to air handler, and suggested that if the Subcommittee agreed to allow panned ducts in wood joist bays, provision

should be included to coat wood with a material to alleviate issues with moisture. John Ferraro stated that Codes (energy, fire, etc.) should address panned returns. John Ferraro stated he had seen from building forensic work that fires have followed the panned return duct chase. It was clarified that the fire code requires fire stop at each 20 ft. in horizontal bay and 10 ft. in vertical bay or floor to floor. Mike DeWein stated that coating inside of wood panned returns adds cost, and asked why full metal panning wouldn't be pursued.

Scott Kopp asked for clarification if the Subcommittee has addressed the issue that a justification must be provided for removing the provision which eliminates panned returns. Marilyn Kaplan observed that it often takes a couple of code cycles for practices to truly be adopted. Daniel Farrell suggested there were larger issues to discuss within the 2012 IECC, such as mandatory blower door testing and mechanical ventilation.

Joseph Hill suggested ~~a compromise be proposed to leave provision in the code, but provide a performance testing option for compliance. No panned returns would be allowed in unconditioned spaces. Committee will~~ the creation of a subgroup of committee members to explore options to panned duct returns. Mike DeWein, Scott Copp, John Ferraro, Todd Stewart; ~~members of the public Sal Elder of EYP Architects and Engineers, and Don Bikowicz of Appolo Heating, will be on the subgroup~~ have volunteered to participate in the Subgroup.

In preparation for the discussion to take place after lunch, Joseph Hill stated that the IRC 2012 requires mechanical ventilation for ~~anything~~ dwelling units with an ACH50 air change rate of less than 5 air changes per hour.

(The group broke for lunch from noon to 1:00pm)

Joseph Hill reconvened the meeting at approximately 1:00pm. Members were provided with a revised meeting minutes for the May 17. To review prior to a revote on the minutes; proposed changes to section **R403.4.2 Hot water pipe insulation** are now shown in detail.

The general feeling of the Subcommittee was that all service water piping was already required to be in conditioned space and that therefore there would be limited energy savings benefit to the proposed changes. Joseph Hill made a motion to adopt the May 17 meeting minutes as distributed. Members voted unanimously to accept the May 17 minutes with the proposed deletions.

Joseph Hill directed the discussion to inclusion of provisions for mechanical ventilation. With total envelope leakage requirements of 2012 IECC being stringent, should there be specific provisions for mechanical ventilation. Mike DeWein indicated that other states have brought provisions of mechanical codes in to address ventilation in energy codes. The group agreed that tight houses need to be ventilated; ventilation can be introduced through continuously operating bath fans (as allowed by code). Dampened make-up air systems are readily available in the marketplace.

Mike Burnetter will look at relevant section of Mechanical Code; also look at ASHRAE 62.2. Mike DeWein stated that a provision for automatic controls for bath fan should be included. Mike DeWein sent portions of the Vermont provisions to the group.

It was clarified for the group that the IECC 2012 requires in New York (Climate Zones 4 through 6 ~~7~~) the envelope air leakage requirement would effectively be 3ACH₅₀. Based on a cost and feasibility perspective for most builders Todd Stewart stated that it would be difficult for him to support. He stated that as a mandatory item, he foresees enforcement issues for Code Officials and large-scale disruption in the marketplace when Certificates of Occupancy may be withheld when builder has contract in place to deliver a home to a client. Mike Burke and Daniel Farrell stated that an envelope leakage requirement of 3ACH₅₀ would likely be difficult for builders not participating in the NY ENERGY STAR Homes program to meet, as many would not understand the processes and quality control measures needed.

Scott Copp made a motion to retain as written the provisions of Section **R402.4.1.2** Testing. To include maximum envelope air leakage of 3 ACH 50. The motion was seconded, and Joseph Hill asked member to indicate their votes. Members voting were as follows:

- John Ferraro – Yes
- Mike Burke – Abstain
- Dan Farrell – Abstain (stating further discuss was needed)

At this point, Joseph Hill stated that due to abstentions, a vote on the provision was premature, and asked Marshall Kammener to discuss provision in the New York City code with regard to required envelope air leakage testing. Marshall Kammener stated that this is handled through a controlled inspection or special inspection process in NYC. Applicant of record must be certified; the Tester is also certified by NYC. Signatures of the parties engaged must be provided. Vast majority of this work is being done by the applicant of record (Engineer and/or Architect).

Mike DeWein stated that Georgia adopted the 2009 and made blower door testing provision mandatory (7 ACH 50) but had a one-year moratorium on the blower door test. The state used ARRA money and did an extensive amount of builder training. Another possibility is to look to NE HERS Alliance report on implementation of stretch code in Massachusetts for residential new construction. There was then some general discussion of who would be accepted to do the testing. RESNET Rater and BPI Building Analysts were generally seen as the workforce currently having the needed skill sets, but that a larger workforce would likely be needed if blower door and duct pressure testing was implemented as a mandatory provision in 2015 in New York State.

Other Options discussed:

- Can a builder do self-test?
- Joseph Hill suggested looking at JLC, Fine Homebuilder to see what normal construction practices (non-Energy STAR) deliver in terms of ACH 50.

- Queensbury (Long Island) building department – Mike Burke to speak with CSG folks to see what is being done there
- Marilyn Kaplan suggested looking to ARRA states where IECC 2009 was adopted where code compliance studies have included blower door information collected. Marilyn Kaplan and Daniel Farrell stated they would provide information on number of HERS Raters and Home Performance Contractors active in NYSERDA's program, to establish a baseline of the available workforce with needed skill sets for blower door/duct pressure testing
- NYC code self-certification provisions (Marshall Kammener to provide for further discussion)

Joseph Hill then made a motion to conclude discussion, and adjourn the meeting. Meeting was adjourned at approximately 3:30 pm.